

The listing of Claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-7. (Canceled)

8. (Original) A circuit for detecting biomolecules *in vivo*, the circuit comprising an optical radiation source configured for *in vivo* use that emits first optical radiation; an optical radiation detector configured for *in vivo* use that detects second optical radiation emitted by excited labeled binding molecules; and a processor circuit, coupled to the optical radiation source and the optical radiation detector, that controls the emission of the first optical radiation and that receives an intensity signal associated with the intensity of the second optical radiation and transmits a signal associated with the intensity of the second optical radiation to an *ex vivo* system.

9. (Original) A circuit according to Claim 8, wherein the optical radiation source is selected from a group consisting of a high powered LED and a laser.

10. (Original) A circuit according to Claim 8, wherein the optical radiation detector is selected from a group consisting of a phototransistor, a photodiode, and a photomultiplier.

11. (Original) A circuit according to Claim 8, wherein the first optical radiation has a first frequency and the second optical radiation has a second frequency.

12. (Original) A circuit according to Claim 11, wherein the first frequency is greater than the second frequency.

13. (Original) A circuit according to Claim 8 further comprising:
an emission filter coupled to the optical radiation source; and
an absorption filter couple to the optical radiation detector.

14. (Original) A circuit according to Claim 8, further comprising:
an inductor coupled to the processor, wherein the inductor provides power to the
circuit in response to a power signal received from the *ex vivo* system.

15. (Original) A circuit according to Claim 8, wherein the circuit is on a platform
having a diameter of about 2mm.

16. (Original) A circuit according to Claim 8, wherein the signal is digitally
encoded via the inductor.

17. (Original) A circuit according to Claim 8, wherein the circuit is coated with a
biocompatible optical translucent layer.

18.-28. (Canceled)